



**ARKANSAS STATE
UNIVERSITY**

OFFICE OF RESEARCH AND TECHNOLOGY TRANSFER

CAPILLARY TUBE SAMPLE LOADING DEVICE

The device achieves at least fifty percent (50%) reduction in sample loading time and cost, such as when loading a sample for analysis by mass spectrometry or microscope.

Key Features:

▪ **Advantages:**

- Cost reduction: eliminates syringe pump and nebulizing gas and reduces solvent use.
- Loading time reduction: enables sample loading in less than 1 minute.
- Minimal amount of sample required.
- Disposable.
- Low device production cost.
- Nondestructive sample collection when accessing hard-to-reach inspection areas.
- Environmentally safe device with minimal chemical waste.

▪ **Applications:**

- Sample analysis using Q-TOF mass spectrometer for:
 - military and defense sectors, including detection of counterfeit electronic parts
 - medical science
 - pharmaceutical R&D
 - natural science
 - criminalistics
- Selective electrospray deposition
- Deposition of sample for analysis using microscope
- Deposition method for Matrix-assisted laser desorption/ionization–Mass spectrometry (MALDI–MS) sample preparation

Project Summary:

Arkansas State University (ASU) is seeking to license/commercialize a novel (patent pending) capillary tube sample loading device and technique. The device and technique employ inexpensive materials and significantly reduce sample loading time and equipment costs.

The sample loading device does not require a pump and comprises a swab coupled to tubing that is adapted to a capillary tube for introducing a sample to a suitable analytical instrument. The innovation provides an inexpensive, disposable device and robust technique that achieves a fast, direct transfer of a suspended or dissolved sample to the analytical instrument.

Development Status:

Prototype tested with successful result. Exploring device production options.

Patent Status:

U.S. Patent pending.

Commercialization Status:

Available for licensing. Seeking funding/collaborations.